

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Anders Grunnet-Jepsen et al.

Application No. 10/749,774

Filed: December 30, 2003

For: HITLESS VARIABLE-
REFLECTIVE TUNABLE OPTICAL
FILTER

Examiner: Charlie Peng

Art Unit: 2883

CERTIFICATE OF TRANSMISSION / MAILING

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on 12-30-2008 / Lawrence M. Mennemeier/
Date Lawrence M. Mennemeier

Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

OFFICIAL RESPONSE AFTER NOTICE OF APPEAL
UNDER 37 CFR 41.33

Sir:

In response to the Office Communication mailed June 27, 2008, Applicant respectfully requests that the above-identified application be amended as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

IN THE CLAIMS.

Following are the claims as currently amended and pending for consideration:

1-18 (Canceled)

19. (Previously Presented) An apparatus comprising:

a Sagnac interferometer comprising a waveguide grating to select a wavelength of an added or dropped signal, wherein said waveguide grating is distributed; and
a phase adjustment circuit coupled with said Sagnac interferometer to control the power of said added or dropped signal.

20. (Previously Presented) The apparatus of Claim 19 wherein said phase adjustment circuit comprises a heater.

21. (Previously Presented) The apparatus of Claim 19 wherein said phase adjustment circuit is piezoelectric.

22. (Previously Presented) The apparatus of Claim 19 further comprising:

a frequency adjustment circuit coupled with said waveguide grating to tune the frequency of said added or dropped signal.

23. (Original) The apparatus of Claim 22 wherein said frequency adjustment circuit comprises a heater.

24. (Original) The apparatus of Claim 22 wherein said frequency adjustment circuit is piezoelectric.

25. (Previously Presented) The apparatus of Claim 19 further comprising:

a frequency adjustment circuit coupled with said waveguide grating to tune a reflection band of said waveguide grating to select the wavelength of said added or dropped signal; and

a phase adjustment circuit coupled with said Sagnac interferometer to provide hitless optical add-drop multiplexing when the reflection band of said waveguide grating is being tuned.

26. (Withdrawn) A system comprising:

a first port to receive an input wave-division multiplexing (WDM) data stream including a plurality of wavelength channels;

a second port to output an express WDM data stream including said plurality of wavelength channels;

a third port to receive an added signal of a first wavelength channel of said plurality of wavelength channels;

a fourth port to output a dropped signal of the first wavelength channel; and

a Sagnac interferometer to control the power of said added or dropped signal, said Sagnac interferometer comprising an optical waveguide grating to select the first wavelength channel of said added or dropped signal and to filter said dropped signal from the input WDM data stream and said added signal to the express WDM data stream.

27. (Withdrawn) The system of Claim 26 wherein a phase of said Sagnac interferometer is adjusted to direct a signal of any wavelength channel selected by said optical waveguide grating from the input WDM data stream to the express WDM data stream while a reflection band of the optical waveguide grating is being adjusted to select the first wavelength channel.
28. (Withdrawn) The system of Claim 26 wherein said optical waveguide grating is a tunable Bragg grating.
29. (Withdrawn) An apparatus comprising:
- a Sagnac interferometer including a beam-splitting coupler;
 - a Michelson interferometer including said beam-splitting coupler and a waveguide grating to reflect a first wavelength; and
 - a phase shifter coupled with said Michelson interferometer to adjust the interference of the first wavelength at said beam-splitting coupler between a destructive interference and a constructive interference.
30. (Withdrawn) The apparatus of Claim 29 wherein said waveguide grating is tunable.
31. (Withdrawn) The apparatus of Claim 30 wherein said waveguide grating is a Bragg grating.

32. (Withdrawn) The apparatus of Claim 30 wherein said waveguide grating is segmented.
33. (Withdrawn) The apparatus of Claim 29 wherein said Sagnac interferometer is a planar lightwave circuit interferometer.
34. (Withdrawn) The apparatus of Claim 33 wherein said Michelson interferometer is the same planar lightwave circuit interferometer.
35. (Withdrawn) The apparatus of Claim 34 wherein said planar lightwave circuit interferometer comprises a quartz glass waveguide. .
36. (Withdrawn) The apparatus of Claim 34 wherein said planar lightwave circuit interferometer comprises a silicon resin waveguide
37. (Withdrawn) The apparatus of Claim 29 wherein said phase shifter is a thermo-optic phase shifter.
38. (Withdrawn) The apparatus of Claim 29 wherein said phase shifter is a stress-optic phase shifter.
39. (Previously Presented) A wave-division multiplexing (WDM) system comprising:
a plurality of Sagnac interferometers, each of said plurality of Sagnac interferometers respectively comprising a waveguide grating to reflect a wavelength

of a respective added or dropped channel and a phase adjustment circuit coupled with the respective Sagnac interferometer to control the power of said added or dropped signal.

40. (Original) The system of Claim 39 wherein a respective phase of each of said plurality of Sagnac interferometers is adjustable to direct signals of any wavelength reflected by said waveguide from an input WDM data stream to an express WDM data stream while a reflection band of the waveguide grating is being adjusted to reflect the wavelength of the respective added or dropped channel.

41-48 (Canceled)

REMARKS

The foregoing amendment is provided to remove issues for appeal and to present rejected claims in better form for consideration on appeal, rather than to avoid prior art.

Applicants respectfully requests reconsideration of this application as amended. As of the Office Action mailed on June 27, 2008, Claims 15-16 and 19-40 are pending in the application, Claims 15-16 and 26-38 are withdrawn by the Examiner from consideration, Claims 19-25 and 39-40 are rejected. Claims 15-16 are canceled.

Applicant respectfully requests the Examiner enter the present amendment for consideration of Claims **19-25** and **39-40** on appeal.

Authorization is hereby given to charge our Deposit Account No. 50-0221 for any charges that may be due.

Respectfully submitted,

Date: December 30, 2008

/Lawrence M. Mennemeier/
Lawrence M. Mennemeier
Reg. No. 51,003

INTEL CORPORATION
c/o INTELLEVATE LLP
P.O. Box 52050
Minneapolis, MN 55402
(408) 765-2194